ENGINEERING CHANGE NOTICE

1. ECN 643797

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Jim G. Field, Data Assessment and Interpretation, R2-12, 376-3753	[] Yes [X] No	06/05/98
	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
	Tank 241-U-112	241-U-112	N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
	HNF-SD-WM-ER-720, Rev. 1	ECN-635600	N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change 13b. Design Baseline Document? [] Yes [X] No

This ECN is being generated in order to correct a typographical error on page 1-2.

Page 1-1 is provided for duplicating purposes only

14a. Justification (mark one)

Criteria Change	[]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[X]

14b. Justification Details

Change made to correct typographical error.

15. Distribution (include name, MSIN, and no. of copies)

See attached distribution.

RELEASE STAMP

DATE: JUN 05 1998 STA: 4 HANFORD RELEASE ID: 2

A-7900-013-2 (05/96) GEF095

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1)
ECN-643797

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

21. Approvals

Signature		Date	Signature	Date
Design Authority			Design Agent	
Cog. Eng. J.G. Field	J G Field	6/5/98	PE	
Cog. Mgr. K.M. Hall		6/5/98	QA	
QA			Safety	
Safety			Design	
Environ.			Environ.	
Other			Other	
			DEPARTMENT OF ENERGY	
			Signature or a Control Number that tracks the Approval Signature	
			ADDITIONAL	

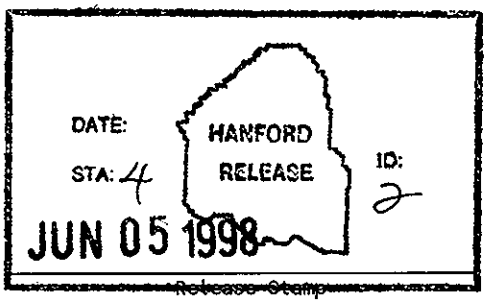
Tank Characterization Report for Single-Shell Tank 241-U-112

Jim G. Field
Lockheed Martin Hanford Corp., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: ECN-643797 UC: 2070
Org Code: 74620 Charge Code: N4G4C
B&R Code: EW 3120074 Total Pages: 125

Key Words: Waste Characterization, Single-Shell Tank, SST, Tank 241-U-112, Tank U-112, U-112, U Farm, Tank Characterization Report, TCR, Waste Inventory, TPA Milestone M-44

Abstract: This document summarizes the information on the historical uses, present status, and the sampling and analysis results of waste stored in Tank 241-U-112. This report supports the requirements of the Tri-Party Agreement Milestone M-44-15B.



Release Approval 6/5/98 Date

Approved for Public Release

RECORD OF REVISION	(1) Document Number HNF-SD-WM-ER-720	Page 1

(2) Title
Tank Characterization Report for Single-Shell Tank 241-U-112

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initially released 08/28/97 on EDT-622685.	M.J. Kupfer	K.M. Hodgson
1 RS	Incorporate per ECN-635600.	J.G. Field	K.M. Hall
		J G Field 5/27/98	Kathleen Hall 5/28/98
1-A RS	Incorporate per ECN-643797.	J.G. Field	K.M. Hall
			K M Hall 6/5/98
		J G Field 6/5/98	

A-7320-005 (08/91) WEF168

HNF-SD-WM-ER-720
Revision 1A

Tank Characterization Report for Single-Shell Tank 241-U-112

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Date Published
June 1998

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

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Hanford Management and Integration Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

1.0 INTRODUCTION

A major function of the Tank Waste Remediation System (TWRS) is to characterize waste in support of waste management and disposal activities at the Hanford Site. Analytical data from sampling and analysis and other available information about a tank are compiled and maintained in a tank characterization report (TCR). This report and its appendixes serve as the TCR for single-shell tank 241-U-112. The objectives of this report are 1) to use characterization data in response to technical issues associated with tank 241-U-112 waste, and 2) to provide a standard characterization of this waste in terms of a best-basis inventory estimate. Section 2.0 summarizes the response to technical issues, Section 3.0 shows the best-basis inventory estimate, Section 4.0 makes recommendations about the safety status of the tank and additional sampling needs. The appendixes contain supporting data and information. This report supports the requirements of the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1997), Milestone M-44-15b, change request M-44-97-03 to "issue characterization deliverables consistent with the Waste Information Requirements Document developed for 1998."

1.1 SCOPE

The characterization information in this report originated from sample analyses and known historical sources. The results of recent sample events will be used to fulfill the requirements of the data quality objectives (DQOs) and memorandums of understanding (MOUs) specified in Brown et al. (1997) for this tank. Other information can be used to support conclusions derived from these results. Appendix A contains historical information for tank 241-U-112 including surveillance information, records pertaining to waste transfers and tank operations, and expected tank contents derived from a process knowledge model. Appendix B summarizes recent sampling events (see Table 1-1), sample data obtained before 1989, and sampling results. Appendix C reports the statistical analysis and numerical manipulation of data used in issue resolution. Appendix D contains the evaluation to establish the best basis for the inventory estimate and the statistical analysis performed for this evaluation. Appendix E is a bibliography that resulted from an in-depth literature search of all known information sources applicable to tank 241-U-112 and its respective waste types. The reports listed in Appendix E are available in the Tank Characterization and Safety Resource Center.

Table 1-1. Summary of Recent Sampling.

Sample/Date[1]	Phase	Location	Segmentation	% Recovery
Vapor samples[2] and Combustible Gas Test (7/09/96)	Gas	Tank headspace, Riser 11, 6 m (20 ft) below top of riser	n/a	n/a
Push core[3] (9/12/97)	Solid	Riser 3	One segment (upper and lower half)	65 percent, 28 cm (11 in.) solids
Push core[3] (9/19/97)	Solid	Riser 6	One segment (upper and lower half)	69 percent, 20 cm (7.9 in.) solids

Note:
n/a = not applicable

[1]Dates are in the mm/dd/yy format.
[2]Evans et al. (1997)
[3]Steen (1997)

1.2 TANK BACKGROUND

Tank 241-U-112 was filled with first-cycle decontamination waste from the bismuth phosphate processes from the fourth quarter of 1947 until the second quarter of 1948. In 1952 waste was transferred to tank 241-TX-118. Tank 241-U-112 received REDOX high-level waste in 1954 and water in 1956. Waste was again transferred in 1970. The tank was removed from service in 1975 and labeled an assumed leaker 32,200 L (8,500 gal) in 1980. The tank was administratively interim stabilized in September 1979 and intrusion prevention was completed in December 1982. A salt well pump was installed in 1974 and pumping was completed in 1978. The tank level was adjusted in June 1976, April 1982, and February 1984 (Agnew 1997b).

Table 1-2 summarizes the description of tank 241-U-112. The tank has an operating capacity of 2,010 kL (530 kgal), and presently contains an estimated 170 kL (45 kgal) of noncomplexed waste, based on tank surface level measurements. The tank is not on the Watch List (Public Law 101-510).

DISTRIBUTION SHEET

To	From	Page 1 of 2
Distribution	Data Assessment and Interpretation	Date 06/05/98
Project Title/Work Order Tank Characterization Report for Single-Shell Tank 241-U-112, HNF-SD-WM-ER-720, Rev. 1-A		EDT No. N/A ECN No. ECN-643797

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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Tank Advisory Panel 102 Windham Road Oak Ridge, TN 37830					
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Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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